



Application No. 09/742,123
Attorney Docket No. 766.45

VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

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1. (Amended) A method for making libraries of hybrid polynucleotide molecules comprising the steps of:

selecting a first single-stranded polynucleotide which corresponds to a coding strand of a first family gene;

selecting a second single-stranded polynucleotide which corresponds to a non-coding strand of a second family gene;

fragmenting the first and second single stranded polynucleotides to form polynucleotide fragments;

hybridizing the polynucleotide fragments to form heteroduplex molecules; and

conducting nucleotide elongation on the heteroduplex molecules, wherein said single-stranded [in which double-stranded] polynucleotide molecules are [not] used as starting materials.

2. (Amended) The method of claim 1, wherein [two types of single-stranded polynucleotide molecules are used as starting materials] the first family gene is different from the second family gene and wherein the first[-type molecule] single-stranded polynucleotide comprises [stretches of sequences containing] at least one [or more parts of homology and] homologous sequence and at least one [or more parts of heterology to the complementary] sequence which is heterologous to [of] the second[-type molecule] single-stranded polynucleotide.

3. Cancelled.

4. (Amended) The method of claims 1 or 2, wherein mutations are introduced into hybrid polynucleotide molecules [prior, during or after the production of the hybrid polynucleotide molecules].

5. (Amended) A method for making libraries of hybrid polynucleotide molecules, which comprises:

- (i) preparing two single-stranded polynucleotide molecules comprising sequences which are complementary to each other,
- (ii) [randomly or non-randomly] fragmenting the two single-stranded polynucleotide molecules,
- (iii) incubating the fragmented molecules under conditions such that hybridization of fragmented polynucleotide molecules occurs and *de novo* polynucleotide synthesis on the hybridized molecules occurs,
- (iv) denaturing the resultant elongated double-stranded polynucleotide molecules into single-stranded polynucleotide molecules,
- (v) incubating the resultant single-stranded polynucleotide molecules under conditions such that hybridization of single-stranded polynucleotide molecules occurs and *de novo* polynucleotide synthesis on the hybridized molecules occurs, and
- (vi) repeating at least two further cycles of steps (iv) and (v).